Amendments

Improving Awareness & Advocacy of the Michigan Biosolids Program

Volume 10, 2nd Quarter July, 2008

Program Alerts

2009 Biosolids Conference

The Michigan Biosolids Team's Conference Committee is planning the next conference. Tentative dates are March 3-4, 2009, location in the Lansing area. Our proposed theme is Biosolids and Energy. We will be conducting tours on the first day and with a reception and dinner. The second day will feature the conference along with breakout sessions. More information to follow.

Michigan News

MSU Ag Expo Recap

Battling high humidity and temperatures reaching near 90 degrees, the Michigan Biosolids Team displayed at the annual MSU Agricultural Expo, July 15-17, 2008. Our demonstration plot featured sunflowers this year. Our MSUE partner did an exceptional job of keeping the plot fenced and weed free. There is a striking difference with the biosolids vs. fertilizer sides of the plot. We had hoped there would be more flowers for expo, but we were still pleased with the plot.

With the weather being hot, a lot of water, compliments of the City of Wyoming, was given away, thus a lot of traffic came through our tent. The popcorn, as usual, was very popular as the popper was going non-stop at times. When the show concluded on Thursday, July 17, there were 29 farmers who filled out cards to be contacted to receive biosolids for their farm.

I would like to thank Synagro for providing balloons and samples of Granulite™ Fertilizer from the Baltimore Pellitizer, many people took a sample for their house plants. I would also like to thank Kim Hackbardt, Scott Kunst, Ken Herman, Jim Johnson, Greg Merricle, Joe Goergen, Graham Chapman, Dave Schipper, Bahram Zamani, Ben Stuart, Kari Saganski, Deidre Isiek, Don Uivtlugt, and Mike Person, who assisted us in the tent this year and Greg and Jeff Huhn for providing hay bales for the tent.

Please join us in the effort for next year's Ag Expo, July 14-16, 2009. We'll be on lot 863.

The Dirt on farmland

BY ERIK HOLLADAY
Citizen Patriot

Farmers this spring are tilling the most valuable soil in their lifetimes to raise grain worth record prices.

Still, recreational and development buyers continue to drive land prices in Jackson County, as they have for two decades.

Even with record grain prices, only a few farmers have ventured into the real estate market. At an average $3,450 an acre -- up $1,000 since 2002 -- few farms are trading hands.

"With the price of farm machinery, fertilizer and seeds, a farmer can't afford $3,500 an acre," said Tompkins Township Assessor Harold Mann.

The costs of nitrogen and diesel fuel -- the lifeblood of farming -- have quadrupled since 2000.

Land for farming use isn't worth much more than $2,000 an acre, Mann said.

High grain prices and soaring land prices have triggered spirited competition for rented farmland. It is good for landowners but yet another increase for farmers.

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"We haven't had any competition for land, until this year," grain farmer Grover Bailey said while preparing to chisel-plow a field on Cooper Road. "People came in on us and offered more for rent, so we had to pay more."

Bailey owns 350 acres near his farmstead on Territorial Road and rents 1,200 acres as far as 15 miles from home. He lost some rented land and added some this year.

"All farmers are looking at holding their acreage or expanding," said Eric Wittenberg, a Columbia Township farmer and research specialist for Michigan State University.

Once a farmer has optimized yields on his home turf, the only way to increase cash flow and to spread the cost of tractors, equipment and storage bins is to add land.

They rent the farmland, instead of buying, because developers and investors have driven prices out of range.

That's a problem for rural assessors such as Mann, who set land values for taxes.

"There are no sales of good farmland," Mann said. Instead, marginal farm acreage with swamps, brush and woods is being marketed to and purchased by hunters from the cities.

Government statistics for farmland values are not based on their potential value in agriculture, but for recreation and development, Mann said.

Rental values are riding high on pressure from alternative uses and from crop farmers.

"Most farmers were paying $50 to $60 an acre for rent, and now some of the bigger farmers are coming in and offering $100 to $150," Wittenberg said. "There are some hard feelings out there."

The hottest competition for Jackson County land is near the borders with Calhoun and Hillsdale counties, where bidding wars take place among the biggest farmers.

Some farmers range 20 miles from their headquarters to secure productive land.

At stake are the financial risks and possibilities of controlling more land in a booming grain market. More land also means more government support.

Corn, the region's biggest crop, recently hit a record $6 a bushel under the demand for food and ethanol.

Corn ground that generated $300 an acre two years ago could produce $700 to $900 or more this year. Prices for soybeans and wheat, the two other major crops in the region, also have doubled -- soybeans to above $13 a bushel and wheat at $8.

Serious cash is flowing both ways. Diesel prices hit $4 a gallon in March. Nitrogen and potash prices, along with propane for drying grain and natural gas for making fertilizer, also have doubled in a year. Anything made of steel has rocketed in price.

Local farmers say it will cost them $350 to $550 an acre to plant and raise corn. A mid-size grain farmer will put $500,000 on the line this spring and summer, and hope for favorable weather.

The prospect of even higher grain prices as demand and supply merge is tempered by memories of $1.50-a-bushel corn, $5 beans and $2 wheat just a few years ago. "The grain market is pretty volatile. Every operator has to look at his own profit margin and pencil it out," said Robert Hannewald, who farms more than 2,000 acres in Waterloo Township.

Hannewald last bought land in 1993, for $750 an acre. He does not plan to buy now at three or four times that amount.

"Even at $750, it was hard to make the cash flow to cover the cost then," he said. "With land at four times that now, it still won't pay."

Wittenberg, too, said average grain prices over time will not cover $3,500 land and sustain profits.

That is why, according to the U.S. Department of Agriculture, farmers in Jackson County rent 52 percent of the acres they till. There are about 1,000 farms in the county, ranging up to 5,000 acres.

The boost in cropland rentals, and increased cash flow among farmers, are a considerable shot in the arm to rural communities. Three grain-to-fuel plants in Albion, Adrian and Blissfield offer a market that was not there just two years ago.

Based on the history of boom-and-bust in farming, the excitement is tentative.

Most farmers interviewed for this report take a conservative approach, figuring the market eventually will crash, or at least correct itself. They don't want to be left with big land debts, including property taxes that continue to creep upward.

"They always say the cure for high prices is high prices," Hannewald said.

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"I call it self-cleaning action," Wittenberg said. "High prices lead to overproduction, which leads to lower prices."

For now, farmers, lenders and investors are high on farming. Farm income hit a record $87.5 billion in 2007, up 26 percent in one year, the USDA reported recently.

Agriculture stocks are strong because farmers are ordering more new equipment, seeds and fertilizer. Analysts say there is plenty of upside in farm stocks such as Deere & Co. and Monsanto.

The Spink family of Hanover isn't buying land or new tractors, but has installed a new center-pivot irrigation system. Brothers James and Ken and their father are the sixth-generation. Like their father, Elwin, did before retirement, they have full-time jobs off the farm.

"We are concentrating on the ground we have. It's just 200 acres but it is ours," James Spink said. He is a Blackman Township public safety officer and vice president of Jackson County Farm Bureau.

His brother is an aerospace engineer at Eaton Corp. and their father is a retired hydraulics machinist. They are among the half of all farmers who have jobs away from their farms.

"It is a lifestyle we can't get out of our blood," James Spink said. "Our focus is to maximize what we have on a smaller scale. We are not going to try to compete for more land."

The Spinks raise grain, including sunflowers for a niche market, and have irrigated their crops for years by hauling pipes into the fields. The center-pivot system, which rotates on wheels and irrigates from overhead pipes, will save time and irrigates more efficiently.

Back-up water is vital, especially on sandy soil, and meant the difference last summer between making and losing money. Part of the region received no rain for six weeks.

Farm acreage that is well-drained by tile, and land that is irrigated, are valued most by farmers.

Recreational buyers and developers generally buy marginal cropland that is swampy, wooded and hilly.

"I'm just closing on a farm for $3,000 an acre, but it's more for hunting than farming," said Phil Morgan of Good Earth Real Estate in Jackson. The client will not rely on farming to pay the loan, he said.

A proposed purchase of a Grass Lake farm by a developer fell through last year when the economy went sour, Morgan said. He sees little farmland hit the market.

The housing slowdown and factory closings in Michigan, coupled with an upswing in farming, will have a side benefit of slowing urban sprawl.

"When you can earn a living off the land, you will keep it," Spink said.

The market for rural building sites has tanked. Housing starts in Michigan are at the lowest level in 40 years.

In Grass Lake Township, where housing development had been sprouting since 1990, building permits peaked at 85 in 2003 and slumped to 11 in 2007, officials said.

Spirited competition for tillable land could slow urban sprawl for years to come. The intense jockeying might be hard for some to swallow, but is a sign of an active farm economy.

"I get a lot of calls from farmers who are upset that rentals have jumped so much in their areas," Wittenberg said. "Unfortunately, it is whatever the market will bear."

Detroit Biosolids Land Application Hits the Ground Running

BY BEN STUART
Synagro Central, LLC

The idea of the Detroit Water and Sewerage Department (DWSD) land applying biosolids has been a long time in the works. In May of 2008, the idea became reality. DWSD and Synagro have formed a partnership that has proven highly successful. To date, DWSD and Synagro have land applied 5,368 Dry Tons (16,666 Wet Tons) of Class B, Lime Stabilized Cake Biosolids, to almost 900 acres in five Michigan counties (Lenawee, Washtenaw, Jackson, Sanilac, St. Clair). When compared to the 2005 MDEQ Annual Tonnage Report, these totals would make DWSD the fifth largest land applier in the state in just over one month of land application.

To date, more than 12,000 acres have been permitted with the Michigan Department of Environmental Quality (MDEQ) across seven Michigan counties. Several area land applying facilities had expressed concern that a program of this magnitude would infringe on their existing biosolids land base. However, the project has actually had the opposite effect by reaching out to farmers better suited for a smaller land application program than DWSD. These farmers are being referred to their local WWTP or contractor to have their fields permitted.

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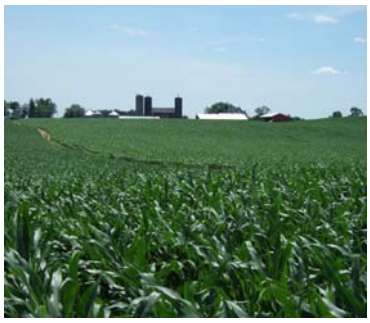
Synagro has taken a proactive approach with the public and the townships in which they land apply. This approach has proven quite successful in promoting the beneficial reuse of DWSD biosolids. To date, there have been no major complaints and several educational opportunities have arisen within the surrounding communities.

Moving forward, DWSD will continue to build its land base. Our goal is to land apply when suitable field conditions allow, in an effort to minimize the landfill tonnage and incineration. With the success of the program to date, Southeast Michigan farmers, MDEQ, DWSD and Synagro all look forward towards a successful partnership for many years to come.

Below are pictures of the first field land applied by the DWSD program. The field was planted approximately May 10, 2008 and is located in Washtenaw County. Current photos taken July 1, 2008, show the current crop and the success of DWSD biosolids as a fertilizer source.



Chelsea's wastewater at capacity

Council weighs plant expansion

BY LISA ALLMENDINGER
News Special Writer

The Chelsea City Council is mulling funding options for a potential $11 million wastewater treatment plant expansion that, if completed, would ultimately translate into rate increases for residents.

Depending on which scenario the council chooses, beginning in 2012, residents could see rate increases of $4.55 to $16.33 per month.

Officials from Tetra Tech, the city's engineers for the project, said the current wastewater treatment plant is not only 20 years old, but also has reached its capacity.

Tom Albaugh of Tetra Tech told the City Council on Tuesday night during a work session that the current average flow at the wastewater treatment plant is 0.8 million gallons per day, and the plant was originally designed to handle 0.9 million gallons per day.

"It's at 85 percent of its current capacity," Albaugh said.

In addition, the plant was designed for a peak flow - which happens when melting snow and rain water get into the system - of 4.3 million gallons, but that number has actually reached 6 million gallons.

For five months last year, the plant handled more than its design capacity and went above its maximum in March. “This is not intended to promote growth," Albaugh said, rather it's a "20-year solution based on reasonable projections ... and a current problem with peak flow."

Plans for the plant expansion began three years ago and were aided by grant money from the state. In 2006, Chelsea was awarded a $360,000 grant for Veteran's Park lift station improvements and in May 2007, the city was awarded a second grant of $540,000 to design a new plant.

In addition, Chelsea received $260,000 in the form of a low-interest loan to upgrade the Veteran's Park lift station, which services the west side of the city.

If the council decides not to go ahead with the expansion, it would be required to pay back about $750,000 in grants and only a few dozen new users would be allowed to hook up to the system.

The city has already committed to a number of development projects that already have Planning Commission approval.

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If the council decides to expand the plant's capacity from its current 1.05 million gallons per day to the recommended 1.85 million gallons per day, the first estimated payment of $700,000 for the construction would be due in 2012.

So as the City Council deliberates its operating budget, Hanifan presented four funding options that combine sewer rate increases with a dedicated portion of the city's operating budget.

If the council chooses to dedicate about $404,000 from its operating budget, it would need to charge a 4-percent increase in sewer rates to fund the payment.

The average resident would see his or her bill increase from the current $28.40 per month to $32.95 per month.

If the council chooses not to dedicate any of its operating millage to pay the bill, by 2012 residents would see their bills jump from $28.40 to $44.73.

By using about $135,000 from the budget, residents would see a $12.40 monthly increase. If the city dedicates about $270,000, residents would pay a $9.46 increase per month.

A town hall meeting will be held in the upcoming months to discuss the project and funding options with residents.

Elsewhere

Ft. Wayne, IN Mayor Dedicates New Baseball Diamond Using Biosolids to Make Lawn Healthy

Fort Wayne, IN - Mayor Tom Henry and Director Al Moll were joined by representatives of the Fort Wayne Baseball Federation, Fort Wayne Community Schools and the City Council as they dedicated the City's newest park and baseball diamond. Named the Daryl B. Cobin Memorial Park, Home of Carrington Field, the 6.3 acre park replaces an old development on the north side of Coliseum Blvd. by Lakeside Golf Course.

"Creating a park and ball diamond here is a great use of this land," said Mayor Henry. "The site is on a flood plain and now absorbs flood waters with the removal of asphalt, concrete, a trailer park and apartment buildings. Impervious materials were recycled and now the community has a great new green space to enjoy."

The Parks and Recreation Department completed demolition and clean up in 2007, removing 89,467 square feet of asphalt, concrete and old trailers.

Green building practices were used in the creation of this park, including recycling the concrete and asphalt that was removed, and the use of biosolids to make the lawn healthy. Low energy sports lighting and 9 recycled construction materials were also enlisted in the Department's efforts to create a new home for Carrington Field.

Lead in Baltimore - The True Story

BY SALLY BROWN
University of Washington

The Associated Press has recently published a second story (note that the word story is generally used to describe a fictional narrative) on biosolids. For the second article, they focused on a study conducted by Johns Hopkins University in cooperation with the Kennedy Krieger Institute. The study was a field trial that tested the ability of Class A biosolids compost, produced in Baltimore, to reduce the bioavailability of lead in urban yards. The study found that, including both dilution and actual reductions in bioavailability, after compost application the danger posed by the high lead was reduced by about 66%. In addition to measured reductions in bioavailable Pb, the compost grew lush grass which made it much more difficult for the children at highest risk for lead exposure, to come anywhere near the soil. This study was done as a follow up to a lab study. In the lab study, a soil from

Baltimore with total Pb of 2000 ppm was amended with a range of different biosolids products. Changes in lead availability were measured using lab tests and an animal feeding study. I know about that one, as I was the first author on it and did all of the analysis on the soils and the rat bones.

An easy, environmentally friendly, cost effective solution to one of the inner cities' big problems? Sounds good right? Sounds like cities all across the country should be doing this.

Not according to the AP reporters. In their story, sewage sludge was sprayed on the yards of poor people, a case of environmental injustice akin to when blacks in Alabama were left untreated for syphilis so that scientists could observe the progression of the disease. This AP story has left the senator from Maryland as well as the senator from California calling for congressional hearings into this environmental injustice.

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Scientists from Johns Hopkins and Kennedy Krieger have responded to this noting that the 'sewage sludge' that was sprayed on the yards is actually a Class A compost made from biosolids, sawdust and wood chips that is for sale at the Home Depot. It is the same material that was used at Camden Yards where the Baltimore Orioles play and at the White House where the President lives. They point out that elevated Pb in urban soils is a real problem and that this is part of the work towards a solution.

I was at a CASA conference last week and worked with some of the leaders of CASA to determine the best way to respond to this article. They are very concerned about this. I encouraged them to start a range of small scale programs with their Class A products to demonstrate that not only are the biosolids safe, they are great stuff. Later in the week I was at the Tagro facility in Tacoma. Talking to Gordon Behnke about this, he said that many of his customers had called to tell him what fools those AP reporters were and how angry they were at the distortions in their story. The different levels of concern about this article as you travel from California up north are a testament to the success of many of the biosolids programs in the NBMA.

Wastewater Sludge - A New Resource For Alternative Energy.

FROM WERF HEADQUARTERS

Wastewater treatment plants are net users of energy. In the U.S. they consume an estimated 21 billion kilowatt hours per year. There are important reasons for this energy use, as society demands increasingly intensive treatment to remove nutrients and chemicals from wastewater before it is discharged back into water bodies or is reused. But energy use is coming under increasing scrutiny, with the financial cost of energy and the environment cost of energy generation driving new interest in the conversion of sewage sludge to energy.

Researchers are exploring sustainable wastewater treatment with a reduced carbon footprint. The view of municipal sewage has shifted, from a waste to be treated and disposed of, to a resource that can be processed for recovery of energy, nutrients, and other constituents.Research has demonstrated that sewage actually contains 10 times the energy needed to treat it, and it is technically feasible to recover energy from sludge. As renewable energy, it can be directly used for wastewater treatment, reducing the facility's dependency on conventional electricity. The greater the quantity of energy produced by the industry, the more the industry can help reduce emissions of greenhouse gases.

Using solids as a resource rather than a waste may help stressed public budgets as well. Wastewater solids must be processed prior to disposal, and solids handling accounts for as much as 30 percent of a wastewater treatment facility's costs.

According to ***State of the Science Report: Energy and Resource Recovery from Sludge***, published by the Global Water Research Coalition with support from WERF, converting solids to energy is feasible and desirable, from a treatment perspective. The challenge is finding a process that meets social, economic and environmental objectives, as well as being affordable and cost effective. For instance, chemical use may be required in certain processes, but it may not always be the best option in terms of health protection and life cycle impacts (energy use and emissions during production and transportation).

There are about 2,000 central sludge processing facilities in the U.S. As of 2004, 650 of those facilities used anaerobic digesters to process its sludge. When sludge is digested, it produces methane gas. The Water Environment Research Foundation developed the Life Cycle Assessment Manager for Energy Recovery (LCAMER) model to helps wastewater agencies determine the feasibility of recovering energy from anaerobic digestion of wastewater solids.

Other examples of energy conversion:

- The city of Watsonville, California uses restaurant grease to increase sewage sludge digester gas production by over 50 percent.
- The use of methane as a source of hydrogen has been demonstrated at King County (WA) South Treatment Plant.
- In 2005 in the U.K., waste (including sewer sludge) combustion and biogas production accounted for 10.8 percent and 4.2 percent respectively of all UK renewable energy.
- A German plant produces excess energy. In 2005, an average of 113 percent of the electricity consumed in the operation of the plant was generated onsite by gas engines.
- A Swedish treatment plant produces and sells biogas to Stockholm's bus company, which uses it to run at least 30 buses.

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- Stockholm's energy company uses heat recovery pumps to extract heat from treated sewage to provide hot water and heating to 80,000 apartments.
- The Sewerage Bureau of Tokyo Metropolitan Government turns dewatered sewage sludge into fuel charcoal for thermal power generation.

While the current technology is promising, none of the processes can fully extract all the energy available in wastewater. The exploration of new technological developments, or improvements of current technologies, will be necessary to get the maximum energy out of sewage and sludge.

In addition to the State of Science Report, WERF has two fact sheets that summarize the current situations. Wastewater Sludge: A New Resource for Alternative Energy and Resource Recovery, is a basic primer for the non-technical audience, public officials and consumers. A Technical Look at Energy and Resource Recovery from Wastewater Residuals provides wastewater treatment professionals with an overview of some of the specific processes.

Calendar of Events

MBT Meetings

Thursday, September 18, 2008 10:00 a.m.
Location: Johnson Wildlife Center
Cadillac Michigan

Thursday, November 20, 2008 10:00 a.m.
Location: Frankenmuth Michigan
Holiday Party